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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/041,637	01/10/2002	Noriaki Kasahara	111653	7488

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EXAMINER

OMETZ, DAVID LOUIS

ART UNIT	PAPER NUMBER
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2653

DATE MAILED: 04/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/041,637

Applicant(s)

KASAHARA ET AL.

Examiner

David L. Ometz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 December 2003 and 03 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 1-12 and 25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13, 14, 19, 20, 23 and 24 is/are rejected.
- 7) ☒ Claim(s) 15-18, 21 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date g.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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1. This application contains claims 1-12, 25, drawn to an invention nonelected with traverse in Paper No. 5. A complete reply to the final rejection must include cancelation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.
2. Claims 1-12, 25 remain withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Group I, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 5.
3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 13, 23-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawata (US Pat 4860432). Kawata shows a thin film magnetic head in figure 1 that has:

As per claim 13, a thin-film magnetic head having a magnetoresistive element 11-18 and a dummy component 23-26 that are formed on a base 1, the magnetoresistive element being formed by etching a part of a film 2 for the magnetoresistive element, the film having a specific shape and being used for forming the magnetoresistive element 11-18, in its thickness direction in a specific region within the film 2 (thus forming long thin bars); and the dummy component 23-26 being formed by etching a part of a dummy film 2 in its thickness direction, the dummy film 2 having a composition (permalloy) the same as that of the film for the in magnetoresistive element and not being used for forming the magnetoresistive element (i.e. the bars 11-18 of the MR element are formed without the need for the dummy bars 23-26).

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As per claim 23 and claim 24, a thin-film magnetic head according to claim 13, wherein a region in which the dummy component is provided has an area that falls within a range of 0.05 to 30 percent (0.1 to 20 percent, claim 24) of the area of a surface of the thin-film magnetic head on which the magnetoresistive element and the dummy component are provided. Specifically, as can be seen in figure 1, there are a total of 14 bars (4 dummy, 2 copper, and 8 MR) equally spaced, plus significant area to the right and left of the bars, which leads to an area occupied by the dummy bars in the bar region alone as $4 \text{ bars} / 14 \text{ bars} = \text{about } 28 \text{ percent}$. Adding in the area between the bars, and the significant area to the left and right of the bars (including the area occupied by conductors 19/20) would easily reduce the total area occupied by the dummy bars to less than 20 percent.

5. Claims 13 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Rudy et al (US Pat 6193584). Rudy et al shows a thin film magnetic head in figure 4a that includes:

As per claim 13, a thin-film magnetic head having a magnetoresistive element (GMR read sensor, col. 18, line 35) 46 and a dummy component 140 that are formed on a base, the magnetoresistive element being formed by lapping a part of a film for the magnetoresistive element, the film having a specific shape and being used for forming the magnetoresistive element, in its thickness (stripe height) direction in a specific region (the air bearing surface region) within the film; and the dummy component 140 being formed by lapping a part of a dummy film in its thickness direction, the dummy film having a composition the same as that of the film for the in magnetoresistive element (col. 18, lines 21-23) and not being used for forming the magnetoresistive element. As per the lapping instead of the claimed "etching" of the dummy and MR components, a "product by process" claim is directed to the product per se, no matter how actually made, see **In re Hirao**, 190 USPQ 15 at 17 (footnote 3, CCPA, 5/27/76); **In re Brown**, 173 USPQ 685 (CCPA 5/18/72); **In re Luck**, 177 USPQ 523 (CCPA, 4/26/73); **In re Fessmann**, 180 USPQ 324 (CCPA, 1/10/74); **In re Thorpe**, 227 USPQ 964 (CAFC, 11/21/85). The patentability of the final product in a "product by process" claim must be determined by the product itself and not the actual process and an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not.

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As per claim 14, a thin-film magnetic head according to claim 13, wherein the GMR magnetoresistive element includes a first magnetic layer, a tunnel barrier layer and a second magnetic layer that are stacked in this order on the base. Specifically, Rudy et al discloses at col. 18, line 35 that the MR sensor can be a GMR sensor, which includes tunnel junction sensors (magnetic layer/barrier layer/magnetic layer construction) as claimed herewith.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawata. Kawata shows an MR sensor with dummy portions as noted above. Kawata further discloses at col. 2, line 43 that the base 1 can be made of, for example, glass. However, Kawata does not disclose what other materials may comprise the base material, and therefore Kawata does not disclose the claimed base being made of a non-magnetic metal. The examiner takes Official Notice that the use of non-magnetic metal as a base material in MR magnetic heads is old and well known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the glass base of Kawata with a non-magnetic metal base as doing this would permit the base to act as a heat sink in drawing heat away from the MR head. Additionally, the non-magnetic nature of the metal would ensure no detrimental interference with the sensitive magnetic nature of the MR sensor.

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8. Claims 15-18, 21, 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Applicant's arguments filed 12/31/03 and 2/3/04 have been fully considered but they are not persuasive.

As a preliminary matter, it is noted by the examiner that because Applicant has failed to seasonably traverse the Official Notice assertion by the examiner in paragraph 9 of the Office action dated 10/6/03, the object of the well known statement is now taken to be admitted prior art. See MPEP 2144.03.

Applicant asserts with regard to the Kawata reference on page 4 of the 12/31/03 amendment that Kawata does not show the etching of a part of the film for both the MR element and the dummy element as being in the thickness direction. However, the examiner maintains that the a reasonable and broad interpretation of "a part" includes etching either part way or entirely through a specific portion/part of the film, and therefore the etching entirely through of portions taught by Kawata is properly applied to the rejected claims.

Applicant further asserts with regard to the Rudy et al reference in the 2/3/04 response that Rudy et al does not show the etching of a part of the film for both the MR element and the dummy element as being in the thickness direction. However, the examiner maintains that the a reasonable and broad interpretation of the "thickness direction" includes any one of several different directions. In the art of MR heads, the "thickness direction" is commonly used to refer to the stripe height of the MR element (as measured from the air bearing surface towards the rear of the MR head, and is the interpretation used by the examiner for the Rudy et al reference) or is

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also commonly used to refer to the thickness in the film forming growth direction. Therefore, the interpretation of Rudy et al is seen as proper and the rejection has been maintained.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

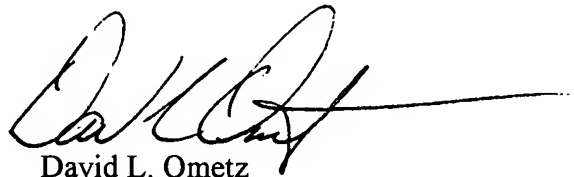
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L. Ometz whose telephone number is (703) 308-1296. The examiner can normally be reached on M-W, 6:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (703) 305-6137. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'David L. Ometz', with a long horizontal line extending to the right.

David L. Ometz
Primary Examiner
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DLO
3/31/04